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THE ANNUAL GENERAL MEETING.

The occurrence of the Derby on the same day as our annual meeting in June has for two years been a source of conflicting attractions. This year the carnival at Epsom is past and there is no excuse for practitioners except work, to absent themselves from attendance at Red Lion Square on Wednesday next. It may be allowed that the annual report offers very little scope for lively discussion. No exciting reform is now before the Council and no question of grave import calls us all to protest or encourage our representative body to pause or to persist. The weary and the indifferent may soothe their conscience by saying "Why should I attend, everything is peaceful and right." But these fair-weather sailors are not the best of the crew, and it is to be hoped that everyone interested in the progress of the profession will give a day to the collective interests.

Nothing is more inspiriting than a full attendance at the only meeting of the year in which every member may express his hopes and fears for the welfare of the profession. When burning questions are to the front attendance is always full, but when difficulties have been surmounted enthusiasm dies out and apathy is very apparent.

Just as our local associations do good by their social re-unions as well as by their scientific exchanges of thought, so our annual corporate gathering is beneficial by its opportunities for friendly meeting as well as for its professional debates.

The annual dinner is a social function of importance. We are honoured by guests of influence who expect to see a goodly show of members. To these, empty chairs suggest a want of interest in our own concerns and an apathy that discourages help when it is wanted. Then again, what other occasion offers such pleasant exchanges of experiences and reminiscences between old friends widely separated perhaps for years? Neighbours may meet and adjust differences, old chums may renew the pleasant intercourse of college life, and all may cultivate that *esprit de corps* without which no corporate body preserves its harmonious progress or sustains its full powers of existence.

When the annual meeting is well attended, when the annual dinner is fullest, then the profession exhibits its greatest vitality and we practically recognise our motto *Vis unita fortior*. No function can be altogether based upon spontaneous emotion, there must be some deliberate organisation, and success requires preparation. Those members who intend to show their interest by attending the dinner will greatly assist the acting committee by announcing their intention to Mr. Hill by letter or postcard as early as possible.

Next Wednesday is the day.

HAVE WE, AT LAST, A RELIABLE REMEDY FOR MILK FEVER?

By WM. PENHALE, F.R.C.V.S., Barnstaple.

Modern methods of farming, rich manuring, high feeding, and the producing of breeds of cattle yielding enormous quantities of cream, have combined to increase and intensify cases of milk fever to such an alarming extent that the disease has become a source of perplexity and disappointment to the cattle practitioner and of very heavy loss to the breeders of this class of stock. Among Devon cattle in my own practice when the pastures are rapidly improving under the influence of warmth and recent rain cases of this disease are very numerous and highly fatal. From it I have lost as many as five cows in forty-eight hours, and nine in nine consecutive days. Preventive measures have been adopted with some degree of success, semi-starvation, even when cows are in high condition, a week or so previous to parturition, and continued for a few days after lessens the number of attacks, many farmers have also given up the practice of breeding from aged cows, for the susceptibility to the disease appears to increase at each calving. Experience proves that after the third calving a cow which produces a large quantity of butter, although she may be thin and low in condition, if gaining flesh at the time of parturition, is very liable to an attack of milk fever. Some few years since, when it was usual to administer sulphate of magnesia after the disease had set in, the mortality in this neighbourhood among Channel Island and Devon cows was very high—fully ninety per cent. —but there was a marked improvement when we ceased to give purgatives and relinquished the custom of rubbing strong irritants over the back and loins. With the quieter system of treatment, giving frequent and small doses of stimulants, warm clothing, witholding solid food, and in some cases administering chloral hydrate, a much higher percentage of recoveries have taken place, probably from thirty to fifty per cent. But to lose one half of the cases treated is still far from satisfactory, although sufficient to encourage the employment of a veterinary surgeon and discourage slaughter.

After watching six cases (detailed below) which have been recently treated by my assistant, Mr. R. P. Thomas, on the plan recommended by Schmidt, and published in *The Veterinary Record* of January 1st, I have every hope of a far better success, and that we shall obtain a more correct knowledge of the pathology of the disease.

On the morning of April the 21st, two cases of milk fever turned in together, both being Devon cows. I

proceeded to one and my assistant in an opposite direction to the other. I found my patient unable to stand, but looking bright, and there was an absence of coma. She had calved about 15 hours, and previous to that time had been kept on good grass land, she was treated on the old fashioned plan of giving stimulants, and on leaving I thought there was a good chance of recovery, but she died seventeen hours after.

Case I. of Mr. Thomas' was an old Devon cow, had had a previous attack two years before for which I treated her. He found her off her legs and comatose; in addition to the administration of the usual stimulants she was treated on Schmidt's plan, the udder being washed with soap and water, stripped, and sponged with a solution of chinosol, and by the simple arrangement of attaching an ordinary milk syphon to a small gutta percha pump ten grains of potassi iodii dissolved in a litre of water were injected in equal quantities through the teats into each quarter of the udder, the elastic circles at the ends of the teats preventing the escape of the solution just as it does the milk. Fifteen hours after she was again on her legs and looking about for food. She made a complete recovery.

Case II, April 29th, an aged Jersey cow, tenth calf, dropped nine hours after calving; she was treated in the same way as Case 1, and stood again in about twelve hours. She soon began to ruminate and search for food, all giddiness left her, and she made good progress for three days when she commenced to breathe quickly, and finally died from acute lung disease (probably owner had carried the starvation too far previous to calving).

Case III. Devon cow, seventh calf; the owner, a good keeper, found her very giddy and staggering a few hours after calving. On applying to us she was put under the same treatment, the giddiness passed off in a few hours, a slight attack of mammitis followed, but she was soon perfectly well.

Case IV, May 4th, Guernsey cow, owner came and reported her taken weak in her back and unable to stand a few hours after calving, he thought it weakness and not parturient apoplexy as there were no head symptoms. Did not visit case then, but ordered stimulants and liniment for back. He reported on morning of next day cow much worse, comatose and tympanitic. We again adopted Schmidt's treatment, coma passed off by ten in the evening, and she stood for some hours. She did well for two days when acute diarrhœa set in (did owner give a drastic purgative unknown to us) accompanied with a slight attack of mammitis. The cow is still alive but threatens to die of exhaustion. (Died since writing).

Case V, May 15th, Devon cow in high condition, seventh calf; off her legs and partially comatose. Again adopted the same treatment; cow rose twelve hours after and has thoroughly recovered.

Case VI, May 20th, delivered very fine almost fat Devon cow of a full timed dead calf, left her apparently alright. Eighteen hours after attendant arrived in great excitement saying cow was down in milk fever and that he was afraid she would be dead before we could arrive. Found her reeling about the shed, she kept on her legs for a short time with great difficulty, and she was devoid of nearly all sensation. Treated her in same way as the other five, and on visiting her to-day, May 23rd, she appears to be quite well, beyond that the secretion of milk is not yet resumed.

VETERINARY SOCIETIES.

SOUTHERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

The annual meeting was held at the Royal Hotel, Southampton, on Thursday, April 14, when there were present Messrs. J. T. King, Bournemouth (president), E. W. Baker, Wimborne; J. F. Simpson, Maidenhead; J. B. Tutt, Winchester; and C. Pack, Lymington, hon. sec. and treasurer.

Letters regretting their inability to be present were read from Professor Pritchard, Mr. J. B. Martin, Mr. Carter (who was ill), and Mr. Wheatley.

The Leeds Conference.

The President presented a report on the recent conference at Leeds which he attended.

Some discussion ensued upon the report, Mr. Simpson expressing the opinion that the Association could not take any action that day. They had sent their delegate to the conference, and they must await the report of the National. He would propose that that course be adopted, and that the best thanks of the meeting be given the President for his interesting report.

Mr. Baker seconded the motion, which was carried.

Exhibition of Morbid Specimens.

Mr. Simpson said he had brought a specimen of the heart of a Japanese dog, the right ventricle and the right auricle of which contained worms, and it would be of interest to him to hear whether the members of the Association had in their experience had any such cases. The parasite in the auricle was the filaria immitis. This parasite was rarely met with in English dogs unless these dogs had been abroad to such places as China or Japan, or other foreign countries where marshes were abundant. The life history of such worms was somewhat peculiar, and although it was by no means certain that the ideas with regard to its history were absolutely correct yet they were generally accepted by those who had had such cases under their observation. The theory was that affected dogs were bitten by the mosquito, and inasmuch as the embryos of this worm were in the blood they were taken into the system of the mosquito and then they commenced to generate. The mosquito, which was a short-lived insect, repaired to the marshes to lay its eggs, and then died. On the death of the mosquito the partially developed worms escaped as the mosquito decomposed. The dogs of the particular district partook of the water, and in time the blood and the two cavities of the heart as well as the pulmonary artery became inveigled. The case he thought was an interesting one, as veterinary surgeons would perhaps make a name for themselves by being able to diagnose this particular condition of the heart, and the parasites within it. A microscopical examination of a drop of blood of an affected dog would reveal any amount of the embryos.

With regard to the symptoms which the dogs presented, Teachers, to his mind, did not describe those which he had observed. He had observed that the dog was dull, refused his food, was very restless, and would constantly jump up and run about as if it had tape worm or was affected with ascarides. It would cry out and return to

its basket, and would settle down to sleep. When it awoke it would begin gasping, and the symptoms he had enumerated would perhaps be gone through again. The dog wasted considerably, and all food was rejected by the stomach, and in the course of perhaps from four to seven days after the appearance of the distinct symptoms it would die, and on a post-mortem they would find these filaria.

He was not in a position to suggest any treatment which would relieve the dog. If they looked at the specimen they would see how the worms were intermixed between the valves of the heart and the carnæ columnæ, and they would understand how useless it would be to attempt to treat the dog with any hope of success. The only thing to do if they were perfectly certain the worms existed was to put the sufferer out of misery. These filaria were found in the right side of the heart and very rarely in the left side, but he believed if they searched further in other situations beyond the heart the presence of these worms would be revealed, more particularly in the blood of the larger vessels of the thorax or abdominal cavity. In conclusion the speaker said he thought the specimen might be of some interest to the members. (Hear, hear).

The PRESIDENT said they were greatly indebted to Mr. Simpson for bringing such an interesting specimen before them.

Messrs. Pack, Baker, and Tutt took part in the discussion which followed.

SERVICE ON JURIES.

Mr. BAKER drew attention to a matter of some importance to the profession, and that was the service of its members on juries, and said they should make every endeavour to get the law relaxed on their behalf.

Mr. SIMPSON said he did not see that they could do much unless they got a bill in Parliament.

Mr. BAKER: No, more do I, but we should keep on hammering away. (Hear, hear).

ELECTION OF OFFICERS.

The PRESIDENT said he had very great pleasure in proposing for the post of President the name of a gentleman which they would all receive with great favour, and that was their friend Mr. Baker. (App.) It did not require words from him to commend Mr. Baker to their notice to succeed him in that honourable position. He had known him for over 25 years, and he could speak in the highest terms of him both as a practitioner and as a gentleman in every sense of the word. (App.) He was a near neighbour of his, and he was sure they would all bear him out when he said that he was a person who would fill the chair with credit to himself and to the Association. (App.) He had nothing to fear, and with the assistance of the members of the Association he would go through his year of office with credit. He hoped that during the coming year there would be better attendances at their meetings, than there had been whilst he was in the chair. Possibly there were times when gentlemen were unable to be present, but every effort should be made by the members to attend. He looked upon the meetings of local veterinary Associations as a great means of making their profession united. (Hear, hear). And he did hope that the coming year would be more successful than its predecessor, and he should like to add that their Association should be as much as possible in close touch with others. Mr. Baker would, he was sure, faithfully and zealously carry out his duties, and he had great pleasure in introducing and commending him to their notice. (App.)

Mr. SIMPSON said it afforded him great pleasure to second the proposition. Mr. Baker had been known to him for a great number of years, and as a very regular attendant at their Association meetings, he felt sure they would be entrusting its affairs into very good hands if they elected him as their President. (Hear, hear.) Mr. Baker would have many opportunities of distinguishing himself in the position, and above all other matters would have the opportunity of keeping well before the veterinary profession the necessity of getting that protection for the members which he himself so much desired. (Laughter). For that reason alone he felt he should be inclined to vote for Mr. Baker, but he had so very many other qualities that he had great pleasure in seconding the election.

The proposition was carried with acclamation, and

Mr. BAKER, in reply, said he should have preferred waiting a little longer before he accepted the office, but he promised Mr. King the previous year that if he would fill the position first he would undertake it the following year. He would promise them he would do his best, and they as the regular attendants at their meetings would, he was sure, do their best. He hoped that the members who did not usually attend would do so in the future, and he should be pleased if Mr. Pack would put on the agenda for the next meeting that the President hoped the members would attend in better numbers. He thanked them for the honour they had conferred upon him, and said he would endeavour to carry out his duties with credit to himself, and with benefit to the Association. (App).

Messrs. J. N. Barford, C. Carter, and Tutt were re-elected Vice-presidents, and upon the proposition of Mr. Baker, seconded by Mr. Simpson, the name of Mr King was substituted for that of Mr. E. W. Baker.

Mr. KING proposed the re-election of his friend, Mr. Pack, as hon. sec. and treasurer. (App.) They were all greatly indebted to him for his valuable services, and he would ably assist Mr. Baker in his duties as he had assisted him.

Mr. TUTT seconded the proposition, which was carried with enthusiasm.

Mr. PACK, in response, said he thought the secretary should be more centrally situated than he was, for if that were so he would be in closer touch with the members which would perhaps ensure a better attendance at their meetings. He thanked them for his re-election, and gave a brief *resumé* of the financial position of the Association. The expenses up to March last for the year were £17 1 10, but their balance in hand at the commencement of the year had been reduced from £14 to £5 9 9.

VICTORIA VETERINARY BENEVOLENT FUND.

The PRESIDENT said he had received some papers from Mr. Barrett, the hon. sec. and treasurer of this fund, who asked that the matter might be brought before the notice of the members.

After some discussion,

Mr. BAKER proposed that the Association do nothing in the matter. They had their National Benevolent and Mutual Defence Society, and he did not think they should drop that institution to help another. It was a matter for individual subscriptions. The Association could not pledge its members to support the Society, and in addition they had not got the funds to do so.

The PRESIDENT: We had better asknowledge the receipt of the papers, and say no decision was arrived at.

DISINFECTION AND DISINFECTANTS.

By E. W. BAKER, M.R.C.V.S., Wimborne.

Mr. President and Gentleman,—A few weeks since our secretary (Mr. Pack) who is the mainstay of the Association, wrote me to the effect that he feared we should fail to secure a paper for the next meeting of the Association, and that he believed I had a paper partly finished which I might give as a "stop-gap" My reply was I had not, but that failing anyone else coming for-

ward I would give a few notes on "Disinfection and Disinfectants." I was taken at my word, and now and ever since I have regretted my weakness. The notes, I am sure, though they are all stolen, will be found badly put together, and the essayist a signal failure, but I must request that my shortcomings will be amply compensated for by a full discussion, and the experiences and knowledge of the gentlemen I am troubling with my presence.

A disinfectant as distinguished from an antiseptic, which is a substance that prevents putrefaction taking place, and from a deodorizer which conceals or removes an odour that may or may not be infectious, is a substance that prevents or destroys infection, and the true principle of disinfection is to attack the specific poisons of disease at their seats of origin, so far as these are accessible to us.

Disinfectants are physical and chemical. The chief physical agent is heat, the chief chemical agents are perchloride of mercury, carbolic acid, and chloride of lime, with certain gaseous bodies of certain germicidal power.

Fresh Air.—Fresh air and sunlight as aids to disinfection are to be counted as very potent factors, and direct sunlight has a powerfully restraining action on the growth of bacteria, though solar action is not actually germicidal as to spores (Nodder.)

Mode of Action.—The manner in which disinfectants are supposed to act is very various. Some, such as permanganate of potassium, ozone, and oxygen set free from water by chlorine, oxidise organic matter. Others, such as sulphurous acid withdraw oxygen, and have a reducing influence; or like chlorine, may combine with hydrogen and remove it, or form substitution compounds. Those of a fourth class, such as chloride of zinc and some other metallic salts, are supposed to owe their activity to the power which they possess of coagulating albumen or combining with it. Another class, of which carbolic acid is the type, is supposed to arrest molecular changes, whether they be those necessary for vital manifestations or for decompositions, and finally the mineral acids are supposed to be effective in part, at least, because they alter the reaction of the media containing contagia. Most disinfectants act in several of these ways. (James Russell).

General Remarks.—It has been proved that the contagia of several diseases must consist of minute solid particles, for they are neither soluble, nor diffusable, nor volatile, and we may infer that all other contagia are particulate likewise. A characteristic of contagium, due to its particulate nature, is that dilution lessens the chance of infection, but has little effect upon the case if the disease be taken. There is either no effect at all or a full specific effect. Contagium particles are apt to exist as clouds in air, water, or milk instead of being equally distributed throughout, and this bears upon practical disinfection. The particulate and now gaseous form of contagium floating in the atmosphere prevents it from being absorbed by any liquid or solid disinfectant which does not wash or come into contact with every portion of the air, and as this is impracticable infected air can only be purified by gaseous disinfectants, such as sulphurous acid or chlorine. Disinfectants of this kind must be present in such a quantity as is incompatible with the existence of human beings or other members of the animal creation. From this it follows that small quantities of disinfecting fluids or irritating vapours and gases distributed in vessels etc. in the sick apartment are of little avail, except in so far as they may be desired as deodorants. Though disinfectant or antiseptic gases of such strength as can be tolerated in the sick apartment are utterly unfit as regards useful effect upon contagium, it is just possible that they may be of service in destroying or rendering incapable of change the organic matters evolved from the skin, things which are always very noxious, and may be especially so in disease. These organic matters are necessarily more or less re-breathed unless the patients be placed in a current of air. If ventilation sufficient to prevent all odour cannot be provided, then some gas, such as chlorine or ozone, that will destroy the cause of the odour is desirable. The best method of dealing with infected air is to replace it by ventilation. The proper use of volatile disinfectants is the purification of walls, ceilings, and inaccessible places, and for this purpose, if possible, enough should be used to saturate the atmosphere.

The nature of the medium in which contagious particles are suspended has the most important bearing upon the selection of a disinfectant. The presence of albumen is found to protect septic germs to a considerable extent against the action of permanganate of potassium and chlorine, but has little or no influence upon the action of sulphurous and carbolic acid. Dr. Bonter gives reason for believing that the comparatively uniform quantitative action of carbolic acid upon contagia and septic microzymes, as compared with the striking differences between the disinfectant action of chlorine and permanganate upon contagia on the one hand and septic microzymes on the other, is chiefly or entirely due to the differences in the media in which the respective particles are suspended, and not to differences in resisting power possessed by the particles themselves. This points to the important advantage possessed by substances like sulphuric acid or carbolic acid, which appear less influenced by the nature of the medium; and also shows the necessity of thoroughly mixing disinfectants with liquids or substances to be disinfected.

The alkaline or neutral action of virulent substances led Dr. Dougall to select dilute hydrochloric acid, which has little action upon lead soil pipes in the cold, as the best disinfectant for excreta. A cardinal principal in disinfection is that it should be carried out at the source, or as near the source of the contagium as possible. All excreta and discharges from the nose, mouth etc. should be, as far as practicable, removed and thoroughly incorporated with disinfectants of sufficient strength to destroy their virulence and give protection to the air. Of all agents for preventing the spread of communicable disease cleanliness is one of the most important. Facts have been adduced pointing to the conclusion that filth, when undergoing change of a fermentative or putrefactive nature is in a condition the most conducive to the extension of infectious disease. Pending the removal of accumulation of dirt, fermentation may be delayed by the application of crude carbolic acid, chloride of zinc, etc., used in moderate quantity as antiseptics, and the whole accumulation might then be earthed over if it had to remain any time.

The ultimate fate of contagium is to be destroyed by putrefaction, and this appears invariably to destroy its specific infective power. In certain cases where real disinfection is impracticable, as in dealing with the accumulation of dung and litter from a number suffering from infectious disease, it is not advisable to delay putrefaction by small additions of disinfectants insufficient to accomplish the destruction of all noxious matter present, but preferably to stack the material so that it shall heat, or may even be destroyed by spontaneous combustion.

Special Disinfectants.

Heat.—Heat, dry or moist, is conceded by most, if not all, authorities to be the best disinfectant we possess; this, however, except in the case of dead animals or their litter, dung, etc. is not a form of disinfection readily applied in veterinary practice. Drs. Henry, Baxter, and Roberts have shown the effects of this agent upon vaccine, malignant pustule, septic microzymes, scarlet fever, plague etc. Tyndall was the first to show that, whilst prolonged boiling failed to sterilise an infusion,

successive heatings for a short time, even below the boiling point, were effectual. The explanation proposed is that during the period of latency the spores are in a hard state, capable of resisting a high temperature, but that just before the period of active germination they become softened, and therefore amenable to the action of heat.

The experiments of Koch on heat as a disinfectant led him to the following conclusions :—

(1) *As to dry heat.*—"Sporeless bacteria are destroyed in 1½ hours by hot air at a temperature slightly exceeding 100° C. Spores of fungi require 1½ hours at 100 to 105° C. Spores of bacilli require 3 hours at 140° C. Heat penetrates so slowly that even for articles of moderate size, such as pillows, 3 to 4 hours exposure at 140° C. is insufficient. Exposure for 3 hours to 140° C., which is necessary for thorough disinfection, damages most fabrics more or less."

(2) *As to moist heat.*—Steam under pressure killed anthrax spores after ten minutes exposure to a temperature of 110° C. Steam at atmospheric pressure destroyed anthrax spores after exposure of one hour. Koch concludes that in every respect exposure to a current of steam at 100° C. is the most satisfactory method.

Parsons found that the spores of B. anthracis were killed after four hours exposure to a dry heat of 212 to 216° F., or of 245° F. for one hour. Bacteria without spores were killed in one hour at 212 to 218° F., while boiling for one hour etc., or exposure to steam at 212° F. for five minutes, was sufficient to destroy spores. The greater power of moist heat is principally due to the large amount of latent heat in steam. To convert 1lb. of water at 212° F. to steam requires nearly 1000 times as much heat as it does to raise 1lb. of water from 211 F. to 212° F. When an object is heated by being placed in hot dry air, not only is no latent heat yielded up to it by the air, but, on the contrary, before the object can attain the temperature of 212° F. any water which it may contain (and all textile fabrics, even though dried at ordinary temperatures retain a quantity of moisture) must be evaporated ; in this evaporation heat passes into the latent form and the attainment of the desired temperature is then delayed. When steam passes into the interstices of a cold body it undergoes condensation in imparting its latent heat to the body. When condensed into water it occupies only a very small fraction of its former volume. To fill the vacuum thus formed more steam presses forward, in its turn yielding up its heat and becoming condensed, and so on until the whole mass is penetrated. On the other hand, hot air in yielding up its heat undergoes contraction in volume, but only to a very small extent as compared with that undergone by steam when condensing into water. (Wynter-Blyth).

Dry heat is inferior to moist heat, owing to the difficulty of ensuring the complete penetration of the necessary high temperature throughout the interior of bulky articles. If pillows, bales of goods, etc., are simply placed in a hot air apparatus, the outside may be scorched, while the inner parts have never reached the proper temperature.

Whitelegge, working with Ranson's hot air apparatus, found that a temperature of 212° F. was not obtained under 12 layers of blankets after eight hours, although the escaping air registered from 245 F. to 260° F., whilst with a moist heat it was obtained beneath 16 layers of blankets after a maximum exposure of 17 *minutes*.

As the result of a large number of experimental observations upon the effect of heat as a disinfectant, it may be accepted that thorough penetration is absolutely essential, though the actual amount of heat and the duration of its application may vary.

As a general rule it may be said that boiling for a quarter of an hour, or, if this is not practicable, exposure to moist heat (steam) of 212° F. at ordinary pressure for one hour will render any article absolutely safe. Dry heat is neither safe nor is it so easy of thorough application ; if used a temperature of 245 to 250° F. should be attained throughout for four hours, even at the risk of some damage to the fabric. It is now acknowledged that the most effectual method of disinfection by heat is in properly constructed heat chambers with double walls, so that the steam shall not only come into contact at high pressure with the fabric itself, but that the cylinder containing the fabric shall be also surrounded with superheated steam.

Dr. Russell, M.O.H., Glasgow, says in a letter : "For many years I have used no other disinfecting method for washable articles than boiling from ½ to ¾ of an hour by steam with soda and soap. I concluded this was sufficient, because though we threw into one witches' cauldron small-pox, typhus, enteric, scarlet fever, etc., I never heard of any inter-communication or continuity of infection."—*Glasgow Medical Journal*, 1884.

The *complete* penetration of an object by steam heat for more than five minutes is considered sufficient for its thorough disinfection, even in the case of the spores of the anthrax bacillus, but in the spores of garden earth 15 minutes was found requisite.

Chemical Disinfectants.

Carbolic acid as a disinfectant requires to be used at full strength to kill contagium, inasmuch as that when used in small quantities instead of destroying contagium it may actually preserve its activity, where otherwise it would have succumbed to the action of natural agencies.

Sulphur Dioxide, according to Baxter's experiments, is the most potent volatile disinfectant known ; (Notter and others, however, rank chlorine and nitrous oxide before it) and as it is very soluble and little altered by the presence of albumen, it is also powerful in the disinfection of liquids, but it is essential that a virulent liquid should be rendered permanently and thoroughly acid. The greater solubility is said (by some) to render it preferable to either chlorine or carbolic acid. The means of preparing it are known too well to need description, but I have found a very convenient method was by the burning of the sulphur candles, sold by most druggists now. Professor Tuson's disinfectant depends for its action upon this agent and chloride of zinc, and the efficacy of the combination proves the value of the preparation.

Chlorine, which is most readily obtained by the action of hydrochloric or sulphuric acid, upon bleaching powder or chloride of lime depends mainly for its action upon its strong affinity for hydrogen which enables it to break up compounds containing that body, and to set free in a nascent or active state the oxygen combined with hydrogen in water.

Permanganate of potassium is non-poisonous and odourless, is said to be a true disinfectant, oxidising and destroying contagia as well as putrid matters. The only safe rule in employing it as a disinfectant is to keep adding it to the matter to be disinfected until the colour is retained. It has no effect in restraining the appearance of bacteria or preventing the onset of putrefaction.

Acids.—The mineral acids and glacial acetic acid have all disinfecting powers when used in sufficient quantity, but the majority (except sulphurous) offer serious difficulties in their application.

Nitrous acid is a vigorous disinfectant, dangerous in its use, and may easily be breathed in quantity sufficient to cause fatal bronchitis.

Mercurial chloride, of a strength of 1-1000 in water, destroys the bacilli of glanders, anthrax, enteric fever, diphtheria, the spirilla of cholera, and micrococci of erysipelas in a few seconds. Spores are not so readily destroyed, requiring an exposure of ten minutes at least ; a 1-5000 solution produces the same effect in a few hours. As a disinfectant corrosive sublimate has three great

disadvantages: (1) It corrodes metal; (2) it forms with albumen an inert insoluble compound; (3) it is poisonous. But on the other hand some authorities state it to be the only disinfectant that seems really trustworthy for destroying septic organisms when it is simply washed over them.

Izal, a comparatively new disinfectant extracted from an unknown oil obtained from certain coke ovens. Prof. Notter speaks of it as "a disinfectant of considerable value." He states that its inhibitory or antiseptic value is such that neither spores, micrococci, or non-sporing bacilli and spirilla can germinate in medicated media if the amount of the disinfectant added is 0·01 per cent. It has also the great property, in a disinfectant, of being absolutely non-poisonous.

Iodine is less pungent than chlorine but its vapour not so efficacious as a disinfectant.

Chloride of zinc being non-volatile is only suitably applied where gaseous disinfectants are not required, *e.g.* in drains, etc. It is very poisonous and requires careful handling.

Chromic acid and potassium bichromate are too costly for ordinary use.

Sanitas is a terebinthinate product which is non-poisonous, miscible with water, and considered reliable, having the advantage of possessing a pleasant odour.

Terebene is obtained by the action of sulphuric acid on turpentine; it possesses the properties of coagulating albumen and neutralising sulphuretted hydrogen and ammonia. It is miscible with water, and largely used in Government offices.

Dr. H. Kenwood, at the Congress of the Sanitary Institute, held last year at Leeds, gave a paper on "The Disinfection of Rooms by Formic-Aldehyde Vapours" in which he says:

"There can be no gainsaying that the infection of the infectious diseases which we have commonly to deal with is very easily destroyed under the ordinary circumstances of its existence apart from the human body, and that this matter of disinfection has been made to appear a much more difficult task than it actually is, from the circumstances that in experiments disinfectants are asked to accomplish a great deal more than they would now have to do in actual practice. In ordinary practice we probably have to deal with non-spore-bearing bacteria of comparatively easy destructibility, and these bacteria do not find at their site of lodgment anything approaching the fostering and protective properties of the nutrient media in which they are planted in experiments."

The following are the conclusions which Dr. Kenwood states may be accepted as amply warranted:

(1) That when the atmosphere is saturated with or charged with from ½ to 2 per cent. of the vapour, the disinfection of all surfaces is complete and rapid, and that this holds good under the ordinary conditions of temperature and moisture obtaining in living rooms.

(2) That the vapours possess a certain and variable amount of penetrating power, especially when these are dry. This penetration is largely due to the circumstance that when produced in a warm state the vapour is of a low specific gravity and mixes well with air.

(3) That the vapours do not affect the colours of textile materials etc. or (with the exception of iron and steel) metallic surfaces.

(4) That the room, and articles enclosed, can be cleared of the vapours readily by sufficient æration, and the vapours are not so irritating but that one can always enter the room and unseal at the first attempt (an advantage over SO_2 and Cl).

(5) That the disinfecting properties of the aldehyde are greater than those of SO_2 and Cl).

(6) That there is no danger in entering the room, either from the aldehyde or from the CO. which is formed at the same time. This is proved from the fact that the men employed in the works and exposed to considerable quantities enjoy good health, and also from many experiments with animals in atmospheres heavily charged with vapours, generated as in room disinfection.

The bacteriological tests made by Dr. Kenwood showed that aldehyde vapour was sufficient in destroying the Klebs-Löffler bacillus.

Professor Notter, of Netley, states: "From experiments made at Netley we believe that the vapour of formaldehyde offers a satisfactory means of disinfection. We have found in all our experiments that surface disinfection is thorough, and as regards penetration formaldehyde is certainly more effective than *any other* disinfectant yet brought before the public. We have tested its action on pathogenic and non-pathogenic organisms, such as B. prodigiosus, B. coli, B. typhosus, B. diptheridæ; all these, whether as superficial colonies or cultures smeared on sterile paper, silk, cotton and flannel were invariably killed after 24 hours exposure."

It is but fair to state, however, that others are not satisfied with its action, notably Dr. Sims Woodhead, at Leeds Congress of Sanitary Institute, where he stated "he thought they must agree its use as a vapour had scarcely come within the range of practical politics," but he goes on to say "I have since had brought under my notice several methods of applying formalin vapour by which some of the objections are removed or minimised, and I shall take an early opportunity of repeating some of the experiments."

I have left the matter of disinfection, as applied to the veterinary profession, almost out of any remarks until now, but before closing I feel I ought to make one or two remarks bearing upon the subject; first, I should like to see some form of portable destructors supplied whenever practicable to Local Authorities for the cremation of carcases of victims of such diseases as anthrax and glanders, if not in every case where necessity required and the authorities demanded their disposal and perfect disinfection.

Next I can but feel that the instructions issued by the Board of Agriculture for the cleansing and disinfection of places where disease of an infectious nature has existed are inadequate, inasmuch as the Order says "After removal of litter, dung etc., and scraping and sweeping out the parts recently occupied, they shall be scrubbed and washed out and then covered with lime wash. To me, and I say it subject to correction by those who are better informed than I am, it appears necessary the floors should be disinfected before as well as after scrubbing and washing, thereby securing the non-diffusion of infected matter beyond the infected premises.

Finally, gentlemen, I consider it is the duty of each of us to impress upon our clients and their employees the necessity for absolute cleanliness, fresh air and sunlight wherever animals are housed, as well as the advisability of cleansing and disinfecting the same periodically. By this means we may help to save the owners' purses and add to the comfort and health of their stock, to say naught of satisfying our conscience in the matter of doing good to our fellow man.

Discussion.

The President said they ought to thank Mr. Baker for his most interesting paper. (Hear, hear.) It was a matter which affected them widely, and he thought they would all agree that the orders of the Board of Agriculture were very much behind the times as regarded disinfection of infected places.

Mr. Simpson said they were all deeply indebted to Mr. Baker for his paper, but one thing he was glad Mr. Baker admitted, and that was that he had gone more upon medical lines than upon what he might call practical veterinary lines. It was a thoroughly scientific paper in every respect, and at the outset he drew

attention to the difference between a disinfectant and antiseptic. It was astonishing how these words became mingled up, for whilst an agent might be an excellent antiseptic it often failed as a disinfectant. It was at one time thought that it was necessary for an agent to have an unpleasant odour to be a disinfectant, but such a theory has long since been exploded, and the endeavour made to obtain the exact power of a disinfectant upon organisms and other spores had been decided and arrived at. The method of calculating and deciding upon the power of a disinfectant was carried out in a thoroughly scientific way by cultures in the first place and by incubating and watching whether the organisms had any power of growth. The agent heat had been referred to by Mr. Baker as one of the most effectual of disinfectants, but he should like Mr. Baker to re-consider that, seeing that it had been scientifically determined that a certain amount of exposure to sunlight was one of the best disinfectants. It was not always in their power to command that agent, but it occurred to him that although Mr. Baker had referred to it as a disinfectant he had not attached as much importance to it as he thought the subject deserved. He found that sunlight had the power of killing non-sporous organisms in one hour, and a day's exposure was fatal to the glanders bacillus. Mr. Baker had very properly admitted the use of perchloride of mercury as a disinfectant for the reason that it coagulates the albumens and was not a penetrating substance, It was held in very high esteem by many veterinary surgeons. Then Mr. Baker referred to carbolic acid, but he failed to mention that carbolic acid was more effectual when mixed with water than when mixed with oil. Carbolic acid mixed with oil was almost useless, and was no more a disinfectant than the oil itself. He did not know whether he understood Mr. Baker to say that carbolic acid also coagulated albumen, but if Mr. Baker held that view he should disagree with him. With regard to mercurial coagulation he entirely agreed with him. They would all agree that moist heat in the form of steam was a better disinfectant than dry heat, which was difficult to use in veterinary practice except in cases of clothing. The disinfection of stalls or boxes with it was very difficult. Mr. Baker had referred to the undoubted advantage of the use of the flame in disinfecting stalls, and the ordinary lamp which was used by painters would without doubt be one of the best disinfectants they could use. There was, however, a difficulty in using it, but if the stall posts were of sufficient thickness it should be carried out where practicable. Mr. Baker also very properly drew their attention to the differences in the germinicidal properties of the different agents. Mention had not been made of any of the new disinfectants, but although he had not had much experience of chinosol as a disinfectant, he had used it with pleasing results as an antiseptic It was cheap and clean and non-offensive.

Now with regard to the orders of the Board of Agriculture, that washing and lime-whiting should be applied; he agreed with Mr. Baker that undoubtedly some organisms the application of water would encourage, but if the superintending of the disinfection was left to them instead of to the Board of Agriculture inspectors they would, he thought, be inclined to apply the disinfectant in a more scientific way than was at present done. He agreed with washing in the first place to remove the excreta, but to his mind strong disinfectants should be used immediately afterwards and before the whitewash was put on, or else the whitewash should be mixed with carbolic. He must say that lime-washing, which he considered was comparatively harmless, was a poor way of disinfecting.

Mr. PACK said it seemed to him that in disinfecting not so much importance should be attached to the disinfectant as it should be to the way it was applied. He found a volatile disinfectant one of the best, but nothing to his mind destroyed infection like sulphurous acid. With regard to dry heat he thought it inferior to moist heat when applied to substances of any thickness. If carbolic acid was a preservative he should be inclined to think that most of the disinfectants which were antiseptic did not act in the same way. They would all like to see portable destructors, but though the Hants County Council had taken the matter up he did not expect they would get them in very small places. In addition to that they had gone into the question as to what means there were of destroying the carcases in the local gas works, but he had not heard any more about it. He quite agreed with Mr. Baker that the sites of diseases should be disinfected before they were washed, but he believed the Board of Agriculture laid it down with regard to cowsheds that they should be scrubbed first and limed afterwards.

Mr. BAKER said it seemed to him that portable destructors could be supplied to local bodies at very little more expense than was at present incurred in burying the bodies. He must candidly admit that he had not placed such value on sunlight as a disinfectant as Mr. Simpson did, and he had just been taught what he did not know before. He also did not know that carbolic acid mixed with oil was practically useless, and with all due respect to Mr. Simpson he did not believe it.

Mr. SIMPSON: You can cultivate bacteria in it.

Mr. BAKER, continuing, said the mention in his paper of carbolic acid coagulating the albumen was a mistake. Mr. Pack and Mr. Simpson had touched upon the disinfection of pig sties, etc., and he had no hesitation in saying that if they had contagion in a pig stye and they did as the Board of Agriculture told them to do they would still have swine fever in the stye. Water was thrown about with the result that the disease was washed into their fields. He did not know the length of time it took to kill the virus of swine fever, but he had known the disease break out months afterwards. As regarded sulphurous acid he doubted very much whether there was a disinfectant to touch it. He thanked them for receiving and criticising his paper and he hoped some of them had gained by the discussion.

Mr. SIMPSON proposed a hearty vote of thanks to Mr. Baker for his paper, and hoped that other members would prepare papers with especially attractive titles which would perhaps have a tendency to increase the attendance at their meetings.

Mr. KING seconded the proposition which was carried with acclamation and acknowledged by Mr. Baker.

Mr. BAKER proposed a hearty vote of thanks be given Mr. King for taking the chair that day and for the able manner in which he had presided over their meetings during the past two years. A more agreeable and pleasant chairman and one who had the interest of the Association more at heart it would be difficult to find.

Mr. TUTT seconded the vote which was carried unanimously.

Mr. KING, in acknowledgement, said his labours had been most pleasant and he might almost say that he was leaving the chair with a great amount of regret, but that regret was lightened by the thoughts that the chair would be so ably filled in the future by Mr. Baker.

The members then dined together under the chairmanship of Mr. Baker, with Mr. King in the vice-chair, and a pleasant hour was spent in recounting college and other experiences.

During the evening the President, on behalf of the Association, sent a telegrum to Mr. Carter, of Guildford, wishing him a speedy recovery from his illness.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

The Quarterly meeting was held at the George Hotel, Rugby, on Tuesday afternoon, May 10th. Mr. H. J. Dawes, F.R.C.V.S., of West Bromwich, presided, and there were present: Messrs. Blakeway and McGill, Birmingham; Barrett, Nuneaton; Barber and Over, Rugby; Wragg, London; Wartnaby, Burton-on-Trent; Paley, Wallsall; Bainbridge, Wellingborough; Burchnall, Loughborough; Gooch, Stamford; Simpkin, Market Harborough; Trevor Spencer, Kettering; Osborne Hills, Leamington; Blunt, Lutterworth; W. Carless, Stafford; W. S. Carless, Worcester; Grasby and Reynolds, Daventry; Merrick, Northampton; and the Hon. Sec. Visitors: Reginald Over, Rugby; and E. W. Parks, Wellingborough.

The President's Welcome.

Before the business of the day was entered upon those present accepted an invitation of the President to lunch with him. At the conclusion of a most excellent repast, Mr. Over proposed the President's health, and thanked him very heartily for his hospitality, which, he said, was strong evidence of a desire on his part to knit closely together the various interests of the Association.

The toast was cordially drunk, and acknowledged by Mr. Dawes in brief but agreeable terms.

Apologies for Non-Attendance.

The Secretary announced the receipt of letters or telegrams, apologising for non-attendance, from the following: Professor McFadyean, Dr. Fleming, Messrs. Trigger, Olver, Chambers, Marriott, Beach, Young, Cartwright, Mason, Proctor, Forsyth, Crowhurst, Coe, Crofts, and Prickett.

Mr. Trigger's excuse was that he had met with an accident, in the shape of a kick from a horse.

The Secretary said they would all be sorry to hear of Mr. Trigger's mishap and join in wishing him a speedy recovery.

Mr. Trigger and the Council.

The minutes of the previous meeting were read and confirmed, and arising out of them, Mr. Wragg asked what had been done in reference to the nomination of Mr. Trigger as a member of the Council of the Royal College.

The President said that it was his prerogative, as head of the Association to nominate their representative on the Council.

The Secretary said that a meeting of the officers of the Association was held in Birmingham some three weeks ago, and it was decided to act in concert with the Associations of Lancashire and Yorkshire, each of which had a candidate. A joint circular had been issued by the three associations in support of their nominees.

The Hand of Death.

The President said that since their last quarterly meeting they had to mourn the loss of two of their oldest and most respected members, namely, Mr. A. L. Gibson, of Birmingham, and Capt. Russell, of Grantham. Both gentlemen had taken very deep and earnest interest in the welfare of this Association, and although they had not been often at their meetings of late years, they could ill afford to spare them. In the case of Captain Russell, he occupied the position of President as long ago as 1882. He begged to move, in all sincerity, that the Secretary be requested to write, in the name of the Association, to the families of the deceased gentlemen, conveying to them the sympathy of the members in the sad bereavements which had overtaken them.

Mr. Wartnaby seconded the motion, which was carried *sub silentio*.

Nominations.

Mr. A. Over nominated for member of the Association Mr. Reginald Over, of Rugby.

The President nominated Mr. Parkes, of Wellingborough, and Mr. T. Buscomb, of Stroud.

The names will, according to rule, be submitted to the next meeting of the Association for election.

New Members Elected.

The meeting proceeded to vote for those gentlemen whose names appeared on the circular as having been nominated at the previous meeting. No exception was taken to any of them, and they were declared duly elected as follows:

Mr. C. W. Crofts (Northampton), proposed by Mr. Merrick, and seconded by Mr. Over.

Mr. W. H. Beach (Bridgnorth), proposed by Mr. Over, and seconded by Mr. W. Carless (Stafford).

Mr. C. Tailby (Birmingham), proposed by the Secretary (Mr. Malcolm), and seconded by Mr. Paley.

Mr. R. W. J. Balls (Worcester) proposed by Mr. W. Carless (Worcester), and seconded by the Secretary.

Mr. J. R. Bathew (Stone), proposed by the President, and seconded by Mr. Bainbridge.

PRESIDENTIAL ADDRESS.

By H. J. Dawes, F.R.C.V.S., West Bromwich

Gentlemen,—My first words to you must be an expression of thanks for having elected me President of this important Society for the ensuing year, thereby conferring upon me a very great honour which I recognise and appreciate to the fullest extent. When I look back upon the long list of those who have distinguished themselves in the same position in previous years, I feel very acutely my own inability to do justice to the occasion, although I shall earnestly strive to justify the confidence which you have reposed in me. Thus, when I come to relinquish the chair, even if I have not quite attained that high standard of excellence which my predecessors have set up, I shall at least be conscious of having done my duty.

I have taken the keenest interest in the Society ever since I became a member, and during my secretaryship my sole aim was to enhance its usefulness. I take little credit to myself for the success I have achieved in that direction, because the assistance and encouragement I have at all times received have rendered my labours easy and agreeable. Indeed, it was this very circumstance that induced me to accept the Presidency, believing that I may count upon a continuance of your sympathy and support in my new sphere of activity.

I hope there will be an improvement in the attendance at the meetings, for I am sorry to say there has been rather a falling off in this respect. It can only be by our united endeavours that benefit will accrue from our deliberations and discussions.

We have all good reason to be proud of the satisfactory condition in which the Association at present finds itself. Since the first meeting at Derby, in 1866, its progress has been steady but continual, until there has now been reached a degree of prosperity which its promotors could never have anticipated. In point of numbers as well as in funds, the Midland Association is one of the most influential in the whole country, and in the politics of our profession is a power which cannot safely be disregarded.

It has in its ranks some of the leading veterinarians of the day, and two of its members have been honored by the Queen with the Diamond Jubilee Commemoration Medal. I am referring, as I need hardly tell you, to

Professor Penberthy and Mr. R. C. Trigger, the former one of our honorary associates who has delighted us "many a time and oft" with a subject for discussion, and the latter one of our oldest members, who has held the offices of President and Secretary with the best results for the Society.

These are honours, gentlemen, which we, in some measure, feel we can share with them, for whilst none will deny that, individually, they have been nobly earned and ungrudgingly bestowed, they shed upon this Socieiy a lustre which we, as members also, cannot help but enjoy.

A moment ago I uttered a plea for larger musters at our quarterly gatherings, and I would like to substantiate it by a declaration, superfluous though it may appear, of the advantages to be derived from the intercourse in which we periodically indulge. The Association benefits us both socially and professionally : we are brought into closest union one with another, and many an acquaintance ripens into a friendship as enduring as life. It is round the social board, too, that we receive in conversation with our fellow practitioners many a hint which is of great service to us in our every-day pursuits, and thus, from a scientific standpoint, an Association such as this is of immense service to its members. We listen to some clever essayists who throw a new light upon interesting and important topics, and never is there a discussion which does not provide *some* food for reflection.

We must all endorse the remarks recently reported of Professor McFadyean, when he said :—"It is hardly necessary for me to dilate upon the great benefits which these societies have conferred upon the profession at large. It is no exaggeration to say that they have played an important part in the elevation of the profession, and in the education of its individual member." The worthy Professor also enumerated the three principal means by which the young Veterinary Surgeon might continue his studies even after he had turned his back upon the College. There was firstly his own personal observation of the cases which came within the range of his practice, and secondly a diligent reading of their scientific journals. The third source of knowledge, and this is the one to which I wish specially to direct your attention, was membership of an association such as this. To quote again from Professor McFadyean :—"The novitiate might acquire much information by associating with his fellow practitioners, and that is one of the great functions of Veterinary Medical Societies. He often had brought under his notice what he thought were illustrations of the advantages of being a member of these Societies. In virtue of his office he was not infrequently called into the country and brought into contact in the way of consultation with members of the Veterinary profession. If he met a man who was 50 years behind the times, whose pathology was that of Coleman or Spencer, then he knew that man was not a member of any local Veterinary Society. On the other hand, when he found a man thoroughly conversant with the most recent discoveries in veterinary science and quite up to the modern methods of treatment, then he knew that that was a member of at least one such society, and he was probably not wrong in concluding that the fact that he was up to the times was in a large measure due to what he had learnt by attending the meetings of the society or societies to which he belonged." Those, gentlemen, are the observations of so astute a man as Professor McFadyean, and I commend them not so much, of course, to the attention of those present, as to the attention of those who, so far, have been too apathetic to enlist in our ranks.

Before departing from the subject of our Association, there is one other matter to which I should like to allude, and it is somewhat in the nature of a suggested reform. I cannot help thinking it desirable that the essayist of the meeting should contrive to send his paper to the Secretary a week or so beforehand, so that it could be printed and circulated among the members. This would be better for more reasons than one. Members would be able to study it before coming to the meeting and so prepare themselves better for a participation in the discussion ; and, moreover, if the paper were taken as read, it would afford more time for its discussion. I have often thought it has been unfair to the essayist, after he has bestowed much time and trouble upon the preparation of his address, and probably undertaken a long journey to attend the meeting, to discover that his remarks are only half criticised, owing to the time at the disposal of the meeting having been absorbed.

Although it is not my purpose to occupy you this afternoon with much that is controversial, there are certain questions of general interest to us, as veterinary surgeons, upon which I should like to venture an opinion, and first and foremost is that of the proposed affiliation of the various veterinary medical societies of the Kingdom with the National Veterinary Medical Association. The idea, as most of you are aware, had its origin in some remarks made by a past president of our own Society, and I think it is one which has in it all the elements of good. Such a representative body would be able to deal effectually with any question which concerned the welfare of the profession, and succeed in adjusting a grievance or removing an evil where individual organizations very often fail. It need not interfere in any way with the regular work of the existing societies, and the financial difficulty, which alone seems to stand in the way of bringing the matter to a successful issue, is one which ought readily to be overcome.

The Victoria Benevolent Fund is another subject of more than passing interest, and the proposal to commemorate the loyalty of the profession to our Queen is one which is under the serious consideration of many thoughtful and intelligent men. The object of the Fund is to afford the means of making grants to veterinary surgeons in necessitous circumstances, or to the members of their family, and I believe it has a future before it. In a profession so universal as our own, it cannot be denied that there are in our midst members who, through no fault of their own, are reduced to the lowest depths of poverty and despair. Illness, or other causes beyond their control, may have prevented them making such provision as they would wish for those whom they leave behind, and it is to relieve their distress that it is proposed to establish this fund. The fear has been expressed that it might affect the well-being of "The National Veterinary Benevolent and Mutual Defence Society," but I apprehend no such a consequence. As *The Veterinary Record* pointed out a few weeks ago, the existing society is practically a prudential one, and the new fund would be created for a charitable purpose. The respective objects of the two institutions are so widely dissimilar, and they would be the means of doing such incalculable good in opposite directions, that it is hard to conceive why both should not be enriched at the expense of all who desire to lessen the aggregate of human suffering.

I think that the formulation of a scheme satisfactory to all parties may safely be left in the hands of the large and representative committee which has been constituted for that purpose.

The next matter to which I would refer is one which I should like to see taken up in real earnest, and that is the exemption of veterinary surgeons from jury service. It is manifestly unfair that whereas the privilege is extended to doctors, and even chemists, a sister profession is left on the same footing as the tinker and the tailor. I am aware that we are not unanimous on the question, for I have heard such a staunch defender of our rights

as Mr. Hunting express an opposite opinion to my own, but I would anticipate the chief argument against the principle, and deny emphatically that the veterinary surgeon has the remotest desire to shirk his duties as a citizen. Far be it from us any such intention. But if we are required to leave our practice for days together to serve upon a jury, not only our own interests but those of our clients are likely to suffer. I understand that the matter has already been brought under the notice of the Parliamentary Committee of the College, but it has been decided to wait and watch the progress of events, instead of spending a lot of money on a special Bill, with only a slender hope of its passing into law.

Lastly, there is the report of the Royal Commission on Tuberculosis, which, after a good deal of anxious waiting, has at length been issued. True to the traditions of Royal Commissions, there is an absence of unanimity in the recommendations made, and in view of the abortiveness of the two previous inquiries, I am curious to learn what will be the result of this third investigation. It is my opinion that before any real headway is made in the eradication of this dreadful scourge, the veterinary profession will have to be consulted more in the matter, because, without our complete co-operation, no legislation can be effectively adopted.

And now, gentlemen, I will not detain you longer, as you are patiently waiting to hear what our friend, Mr. Over, has to say upon the "Breeding of hunters, a subject with which he is exceedingly familiar; but before resuming my seat I must reiterate the wish I have already expressed, namely, that our meetings will be well attended during my year of office, for it is only by that means that the objects of this Society can successfully be carried out.

THE BREEDING OF HUNTERS.

By A. Over, M.R.C.V.S., Rugby.

Gentlemen,—Some short time back, among my letters I received a request from our worthy president to read a paper at this meeting. I thought that I was exempt now, and tried to claim exemption, but our president would not concede it and thought I might read a paper on "Hunter breeding," which would not be much trouble to me. This, I am sorry to say, was not the truth. Eventually I said I would do what I could just to stop the gap, but I am sorry to say that in consequence of having been very unwell lately, I am only able to offer you a very incomplete paper. I must therefore ask you to forgive me for any disappointment it may be to any of you, and I trust that any discussion there may be upon it will make up for shortcomings.

In the circular convening this meeting the paper is called "Breeding of Hunters," but thinking that I could not introduce sufficient interest in this only, I have added a few of the complications attending breeding. I have purposely avoided mentioning particular strains of blood. I think what we want principally for hunter breeding are good sized and good looking sound parents, and long distance horses, not the often weedy 5 furlong horses.

I will pass a book round in which is depicted the portrait of, to my idea, an ideal "hunter" stallion, but, unfortunately, they don't exist in every neighbourhood, consequently we must put up with what we can get.

The Hunter Sire.

Like all other sires, the hunter sire should first of all have two good ends.

Breed. Should be thoroughbred or by a registered sire.

Qualification for a Registered Sire. Must be by a thoroughbred horse– out of mare with three direct crosses of thoroughbred (or any one of these may be a registered hunter sire) out of a registered mare.

Color. Bay or brown is best.

Height, 15·2½ to 16·1. *Girth*, 6ft. 2in. to 6ft. 8in. *Shin*, minimum 8¼.

Action. Should have firm straight action, and bend knees and hocks fairly; plenty of courage, but free from temper.

Constitution. Hardy, shown by carrying good amount of muscle, a general good doer, big back, ribs, etc., and if has been raced should be a stayer over distance.

Congenitals. Congenital deformities (such as odd feet) to be avoided.

Hereditary Unsoundness. Free from what is looked upon as hereditary unsoundness, viz., roaring, cataract, navicular disease, ringbone, and spavin, and I think I would add "sickle hocks, for my own opinion is that a decidedly sickle hock is the worst defect of any, in either a sire or a mare, and my experience has been that it is frequently transmitted to the progeny, rendering them quite unsaleable, at any rate until they become 5 or 6 years old, when the hocks have got pretty well set, and perhaps been blistered and fired a time or two; but the price will not often be satisfactory.

Position. He should stand well on all his legs, with his toes neither turned perceptibly in or out.

Head. Have a good sensible head, with bold eye and good ears, well-set on a good blood but not ewe-neck, coming well out of the shoulders, which should be deep and nicely oblique.

Shoulders sloping well into the back, so that when you take a plumb-line from the posterior angle of the blade bone you can see the girths will be well away from the elbows.

The back should be rather short and slightly arched, with tail set on high up.

Good width of hips, but not ragged hips, with big nicely turned long—not drooping—quarters, with big breech and big across the stifles—side view; muscular gaskins, and with big flat bony hocks well let down, and good width and well traced out underneath, not tied in as we frequently see.

Fore Legs should not be too close together, nor too wide apart, with long muscular arms and elbows nicely placed; nicely arched knee, or, at any rate, not back in the knees, short below knee, with good flat bone and well defined tendons, not tied in directly under the knee, with good sized fetlock joints; the pasterns should be strong —not too long nor too oblique, neither should they be too short or upright; added to which we should have a good sized somewhat open foot, with sound horn and frogs.

Middle. Should be possessed of a good middle piece formed by a deep girth, big through the heart, and with deep back ribs, well sprung and well ribbed up.

Hips. Horses with ragged hips and a big space between the antero-inferior spinous process and the last rib, are frequently fretful and washy horses, and weakly in their bowels.

Bad mares are frequently sent to the horse, and however bad the produce the horse gets nearly all the blame.

Some years back I used to give a prize of £10 at our show for the best foals by my own horses, but being so disgusted with the mares and of the foals that were sent into the ring, I discontinued my prize, being ashamed of such an exhibition of mares having been sent to my horses—they were a disgrace. You must not think we had no good mares, but they were certainly conspicuous by their absence in the ring.

The Hunter Brood Mare.

Much depends upon the mare, as to what we wish to produce, and the requirements of different districts are such that quite different mares are called for.

If we wish to breed horses up to 16 or 18 stone, we must have cart somewhere, and undoubtedly the mare is the one to supply it, but in taking a cart or heavy mare

we must choose one showing quality; this can never be overlooked. But I do not think it is from the first or direct strain that we must go for breeding weight carrying hunters; we must take the next, or even next generation, and then by a judicious cross we may venture to hope for the desired animal, and as we proceed further and further, by continued mating with the thoroughbred horse, we shall get animals varying in strength according to our requirements. As long as the horses are up to the weight we cannot have too much blood for the best parts of the shires, where the enclosures are large and nearly all grass, and hounds at times fairly race. Here a horse wanting in quality and speed would be pumped before he had gone a mile and would probably come to grief very soon when asked to jump the big fences in such a country—for wherever the fields are large depend on it the fences are pretty strong. But in other hilly, banky, plough countries, small enclosures, dykes. etc., a very highly bred horse would not be so suitable, great speed not being so much a necessity, but rather a more compact horse with good shoulders for going down hill, and strong hind quarters for jumping and climbing the hills. As a rule this class of horse is more patient, and consequently a greater pleasure to ride in a cramped country than one that is all the time jumping into his bridle and wanting to go at a big speed.

Brood Mare for the Shires. To breed hunters for the shires I would choose a well-bred, lengthy mare on short legs, with a bit of size, according to what it is wished to breed. I am certainly in favour of trying to breed big ones, depend on it that if we start on big parents—I don't mean go to extremes—we shall be sure to have quite plenty of small stock. A good big horse is more scarce and much more valuable than a good little one, and should he miss his mark as a hunter he will probably be valuable for harness, as we all know big harness horses, with action—but must have action, are worth a lot of money; not so with the little horse missing his mark as a hunter.

Mare. Size 15-2 to 16.1, lengthy, on short legs, with quality, and a good coloured bay or brown for preference, with good courage and temper; having a nice blood head and lengthy neck, but not too long and not ewe necked; ears nicely pricked, not lop-eared, which are much against the sale of anything except a racehorse, and I don't think they are any advantage there. These are sometimes thought to show the character of some particular strain—Melbourne for instance. Good shoulders are a necessity, and I like to see a good wide blade bone at the top and not too thick over the withers, although it may be strong. Girth 5ft. 10in. to 6ft. 10in. Strong back and big ribs and good wide, but not ragged hips, tail well on the top, quarters not drooping but nicely turned, big and long; big bony hocks, not tied in below nor standing too far away. I would again like to put a black mark against sickle hocks, I would much perfer a mare with spavin, for although I live in one of principal hunting districts in England and have for years been in the habit of examining a great many hunters, I must say that I only occasionally come across a hunter lame from spavin, and I think you will agree with me that very many hunters have spavin, coarse hocks, or what term we like to apply to those exostoses.

The forelegs should be a fair width apart, not both out of one hole, as the saying is; the elbow should be nicely placed and not too much under the chest making the mare to stand head first and look heavy at the shoulder points, which would pitch her on to her fore legs in going; with long muscular arms and nicely forward knees, short cannons with big flat bone and well defined tendons, pasterns not small but nicely proportioned, not too long or too short, neither too oblique or too upright and good open foot, with sound horn and big frogs.

The head-first appearance, mentioned above, I have seen to such an extent in the foal that it has been mistaken for deformity, the humerus being quite horizontal, thus throwing the elbow very far back and making the animal look almost like a kangaroo; in the course of a short time when the foal gets its strength it will probably get allright.

Mare for cramped or hilly country. I should say that the class of mare should be a lengthy Welsh mare on short legs, with good shoulders to go down hill and big strong back and quarters to climb the hills and keep jumping. Other particulars I should say much as in other mare, perhaps not quite so high, with good bold and fearless action.

Age to Commence. I think 3 years old a good time. She should first be put into the breaker's hands and then she may be served; any time in April is, I think, early enough, in fact I think too early for most farmers, they often being short of accomodation. I think half-bred foals are early enough when the grass has come, and there is seldom much grass before the early part or middle of May. Then at weaning time, viz., 4 off, the mare will be ready to go into hard work and be made into a hunter during the winter, and if good enough sold as hunter at end of season or following autumn, when she would be 5 off, a very nice age; many good dealers won't buy younger ones to sell again. Thus she would produce a foal to take her place.

Condition for service. Should mares which you wish to breed from be in very high condition perhaps it would be well to give them a dose of physic and reduce their corn before putting them to the horse.

Trying Mares. This is a particular part wanting a great deal of care, for mares are like young ladies they want a great deal of understanding, a particular I daresay most of you have already found out. The mare's head should always be presented to the horse first to give them an opportunity of looking and smelling at each other and perhaps have a little conversation in their own particular way, having done that the mare may now be put alongside, etc., quietly, but do not hurry or knock the mare about, if you do many will be put off showing and will be missed.

Hobbling; twitch. The mare now found to be in season should be hobbled carefully. I never have a mare served unless she is hobbled, for safety of both mare and horse. The twitch should be used as little as possible, but it cannot always be dispensed with. Neither directly before or after service should the mare be ridden or driven fast or long distances, nor should she be allowed to lie with a gelding.

Repetition of service. Should the mare remain in season more than 4 or 5 days after service I would, if practicable, give her another service. I am not an advocate for serving a mare again too soon if satisfied that service was a good one. I know this course is not allowed in some studs, a mare is only allowed one service for one period of œstrum, but I think that is mostly in cart-horse studs where horses have a great many mares, and I do not think there is much fear of nag horses having too many mares now-a-days, for according to my experience there is not more than one-third of the nag horses bred now that there were 10 years ago. Consequently the profits on keeping stallions for hunter breeding only has in most places become quite a thing of the past; the foreign supply has brought this all about. I think there are very few of the premium stallions that complete their number at only two guineas apiece, after being selected and examined by good men, both of which should have great weight, but I think most horsemen like to back their own opinions as well.

Foaling Mares usually come in season about the 9th day after foaling, but an eye should be kept on the mare on the 8th, as some come on earlier and others may not show for several days later; if it should happen that the mare gets missed at this period, and it frequently does

in consequence of the mare when tried not showing very plainly, it is often under these circumstances thought that she is just coming on and will be well in season to-morrow, but on the morrow she has gone past. Now we must watch and try her again on the 21st day after foaling, which is a good day for service, particularly after a mare has had a bad foaling time, the generative organs will have had good time to get over their trouble. When a mare is served about the 9th day, it is good practice to try her again on the 21st; after this, if convenient, she may be tried once a week for six or seven weeks, and if she does not break in that time I think there is good hope that she is stinted. Should she break after 8 or 9 weeks it is very probable that she has miscarried, and in case the time has advanced after the 1st week in July I would let the mare run by to another year A mare although in foal may do a fair amount of work as long as it is continuous and not a lot of backing work. I would not recommend a brood mare to be worked for a time and then rested for a month or more and then put to work again. I have known many mares to hunt a *good part of season* and carry foal safely, this has been when covered late and owner has thought that mare was not in foal until finding her sluggish and noticing at the same time that she either increased in size or that she did not reduce in her ribs or belly according to the work she was doing.

Gestation. The period of gestation is usually about eleven months, a few days more or less. I have known one or two cases where the mare has carried and foaled a live foal at 12 months and 3 weeks.

Waxing.—When within a month or so of foaling, the udder will begin to enlarge, if mare lies in at night it will be noticed more in morning and will walk down during the day; a swelling, more or less, will often extend along the belly, sometimes to a great extent, which is seldom of any consequence, the legs too may become œdematous, as also we occasionally see about the throat, after mare has been hanging head down grazing for a time. Now put mare in good airy box, having first arranged to hang a lantern from near the middle of roof by means of a pulley, so that it can be pulled up and down at pleasure, and when lighted I think I need hardly say, have it sufficiently high to be out of the mare's reach, by this means we can look frequently to see what progress the mare is making without disturbing her, as the continual flashing of a lantern from the hand would do, it is also saving of help at time of foaling, when perhaps there is none too much at hand. The man should be provided with a pair of strong scissors with which to cut the cord (I prefer scissors to a knife, as the latter if not very sharp is apt to pull the cord), some string well saturated with some disinfectant dressing and bottle of disinfectant to smear about the navel, and direct man to wash his hands and arms well with some disinfectant before meddling with the mare. As the time of foaling draws near the udder will become full, when a piece of wax, more or less elongated, will usually be seen hanging from one or both teats. From this time the mare should not be lost sight of for long; she may leave off waxing and not foal for another week or two, but generally when a mare waxes well, she does not go more than about 30 hours. The wax may break off and the milk run down mare's legs for several days, but don't neglect her thinking that as she did not foal last night she won't to-night. The quarters will be noticed to sink and the bearing will become elongated; in the daytime if she seems fairly comfortable, a little walk out into the paddock will not hurt her, in fact I think it will do her good. I had a thoroughbred mare this season which for several days did not seem happy, either in or out of the box, if in she wanted to go out, if out she wanted to go in, but I am pleased to say that she brought me a very good colt on Easter eve, and which I hope you will hear good things of in time to come. Very shortly before foaling the mare will usually walk round and round and smell about the box, and lie down and get up a time or two, all at once she will break out into a perspiration when you may be sure, that all being well, it will be over in a few minutes. She now lies down and commences to pain; she must not be left now, and when the water-bladder has well come the attendant may go in quietly, but don't be in too big a hurry, give the mare a little time. Presently the water-bladder should be broken, if the mare has not already done it; we next look for both fore feet and between them, the head of the foal should be. As the mare pains a little help may now be given by pulling gently at the fore legs, and at same time see that the fœtal membranes are not over the nostrils and mouth. In case the foal does not come forward pretty well extra help, which should be near at hand, may be called, and in case of further difficulty a rope may be put on each fore leg and head; for the latter a fixed rope—not a running noose.

The foal being born, see that the mouth and nostrils are clear of membranes, when the breathing will commence gradually. The umbilical cord should now be tied, and afterwards cut with a pair of strong scissors (which are preferable to knife) about two or three inches from the belly Do not make the mare get up, but take the foal round to the front of the mare that she may lick it, which helps to dry the foal and to establish the circulation. Do not hurry to get foal on its legs, but have plenty of straw by the walls and let him struggle about till he gets strong enough to require very little help to put him on his legs. He won't hurt for an hour or so without milk, and when he can stand he may be directed to the teat, and perhaps a little milked into his mouth. As a rule he soon takes to the teat, but some are very troublesome, as are some mares from their irritability, and also from the teats in some young mares being so small. After from three to ten days' time they may—if weather permits—be turned out for short time.

As soon as circumstances permit have box cleaned well out and if same box is wanted for several mares use disinfectants.

Mare after Foaling. Should the mare not clean I would not meddle with the membranes for a time, more than perhaps lift them up a bit. After 12 hours or so I would then try them lightly, and if after 24 hours are still retained I would turn up my sleeve well and use little stronger manipulation, but not strong enough to tear them away from the attachments, and now pass hand into uterus as well—still using a little force, but not too much, as I do not believe in tearing them away. They are frequently found to adhere very tightly in one or both horns and however much force we employ we cannot get it all away, we may break it but I prefer leaving some long shreds to lay hold of another time. I would now inject with warm water containing some disinfectant—such as Chinosol, Liq. Pici. Carbonis, or Jeyes' Fluid, and repeat if necessary morning and night. Whatever I inject I like at same time to remove, which I do by converting the pump into a syphon, as I frequently find womb to be flaccid and mare unable eject it. I always use two buckets—one clean for injection, and the other to draw into direct from womb; this latter need not necessarily be a clean bucket, as it is only for the purpose of catching the stinking fluid and being thus able to carry it away instead of having it about the floor of the stable A second injection may perhaps be given to insure the womb being washed out clean. If we tear the membranes away I think we are running a much greater chance of poison being absorbed through the abraded portions, and I think we shall at the same time be running the risk of causing the mare to pain, and evert the womb. Should mare pain much and I think there is fear of eversion I at once put on clams and give mare big doses of chloral hydrate.

You will notice that the tube of my pump is longer

than usually sent out—9 ft. or 9 ft. 6 in. The usual length is 6 ft, which is much too short; but if you want it any longer you must order it and wait, or as I have done—have a joint put.

When injecting, the hand should be kept over the end of the pipe till you can move your finger in a lot of fluid, which the end must be kept in or will not act as a syphon. Feeling that you have plenty of fluid you may direct your attendant to hold the pump up a trifle higher than the level of the other part of pipe, and then unscrew the pump and put the pipe over the second bucket, you must still keep the end within the womb well covered in the palm of the hand or you find that portions of membrane or womb itself will soon block up the holes by suction. By this means you can take out nearly all you pump in, and frequently more, for there is often a good deal of fluid in the womb of its own secretion. By this means also, comparing the two buckets, you can make pretty sure you have removed about all you put in, and we get rid of the poison instead of allowing it to remain inside and be absorbed.

By way of medicine I usually in such cases, according to circumstances, give plenty of whisky, ammonia, and cinchona, and must say that since I have adopted the above measures I have not had so many cases of septic laminitis, and when that has taken place it has generally been less severe and ended very favourably compared with years gone by. Should I notice or be suspicious of laminitis coming on I at once have shoes taken off and apply cold poultice.

The Fœtal Membranes. I have some of these taken care of every year. If the membranes are washed and then spread out on something till nearly dry you will find this very good material either for the jam pots or for ointment pots, it is much less trouble to use than bladder.

Should foal have any difficulty in passing the meconium inject some warm water with enema pump, and repeat it as often as necessary. I am always afraid if the foal is allowed to strain much that it will induce scrotal hernia. About the 8th or 9th day, when the mare is coming into season again, the foal generally scours more or less, but unless it at the same time refuses to suck we need not take much notice of it. At such times I generally give the mare some sod. carb. in mash or drinking water morning and night, and continue it as long as foal scours. Should I think it has gone on long enough and should receive treatment, I then give some diarrhœa mixture, which I believe is recommended by Prof. Penberthy, in a little wheat flour gruel, and which I find to be very effective, and have mare milked partly out several times during day, that foal shall not have too much.

Discussion.

Mr. Gooch, in obedience to the chair, opened the discussion. He said that the first point which he noticed in Mr. Over's paper was the time at which he started to breed from a mare, namely, three years old. It might be the best period for financial reasons, but he questioned whether the animal could really be considered to have arrived at maturity at that age. Did Mr. Over consider a mare sufficiently matured at three years' old? As regards the dressing of the navel after foaling, the preparation which he (Mr. Gooch) used was a very good one, namely, glycerine, boracic acid, and a few drops of carbolic acid. The glycerine stuck well to the navel, and one was sure of every part being dressed. He was always an advocate for removing the placental membranes immediately after foaling, and certainly not more than 5 or 6 hours afterwards. He did not believe in letting it remain in the uterus as long as 12 hours, if we wanted a successful case. Mr. Over also said he was very careful to remove the injection, and he should like to know whether Mr. Over injected in every case, or only in those cases where he feared complications, and also whether any harm would arise if any of the antiseptic fluid was left in the uterus. He (Mr. Gooch) did not remove all he injected, for as soon as the uterus was restored to its normal condition, the mare herself would expel what remained in. He was also an advocate, and particularly with thoroughbreds, of giving a tablespoonful or so of castor oil. Many practitioners deprecated that course, but he thought it did no harm and might act as a preventive. When scouring took place on the ninth day, those who had anything to do with the breeding of thoroughbred stock would find great difficulty in keeping the hair intact upon the hind quarters owing to the action of the dung. It was now the practice in many large breeding establishments to smear the hind quarters with some greasy preparation. It had been an old habit in many stables to give the mare a certain amount of malt. He had found the extract of malt very useful, either given in water or in the concentrated form, when the foal was scoured very badly. He concluded by thanking Mr. Over very much for his most interesting paper, which contained many practical hints upon an important subject.

Mr. W. Carless (Stafford) had great pleasure in testifying to his satisfaction in listening to Mr. Over's address, because that gentleman was able to speak with authority upon the breeding of hunters. There was very little in the essay that was, in his opinion, debateable, as he agreed with most of the statements made, but there was one thing in which he held a different opinion to Mr. Over, and that was as to the length of time which the placental membranes should be allowed to remain in the mare's womb. He thought 24 hours much too long. He had generally found that if the animal did not cleanse in the course of two or three hours, she might have an anodyne, combined with a stimulant given to her, and the veterinary surgeon could elevate the membranes by getting the hand inside up to the wrist. By lifting up the membranes the whole might come away, but if there was much laceration, it would have to be stripped and taken away in pieces as the case might be. He never failed to do it at the end of 12 hours, because the abrasions of the uterus which occurred in parturition were liable to become contaminated with the decomposing matter inside. He liked Mr. Over's method of taking out the fluid that was injected, because if the mare did not get into a proper recumbent position, the injection could not flow away, and the effect of that might be to prevent the closing up of the womb. He (Mr. Carless) found that Jeyes' fluid, mixed if necessary, with a little alum, succeeded in preventing any septic mischief.

Mr. Wartnaby confessed that he had been very much interested in the essay, and Mr. Over would have found it difficult to bring forward a more attractive subject, because it was one which his long experience in the breeding of hunters enabled him to speak upon with authority. There was one point which he wished Mr. Over had dealt rather more freely with, and that was as to the mating of animals for the breeding of what was called a weight-carrying hunter. There had been a great diversity of opinion upon that particular point, and he should have been very glad if Mr. Over, with his many years experience, had enlightened them upon it. He agreed with Mr. Over's definition of a good hunter, but it was very essential to know whether the sire or the dam should be thoroughbred, or three-parts bred, or what. He (Mr. Wartnaby) once came across an extraordinarily good hunter, which was what he should call a bastard, that was a horse got by a two-year-old cart colt out of a thoroughbred mare that was running with it. It was a chance foal, and being a fair one when dropped, the owner kept it. It gained a great reputation in the field and the last he heard of it was that it fetched more than £200. He thought 24 hours was far too long for the mare's cleansing to remain untouched,

and if practicable he would have it removed before he left the place. The only objection to that course was that if the membranes were very adherent, and they were taken away at once, there would be a great amount of straining on the part of the mare. He disagreed even with Mr. Carless, and thought that 12 hours was too long for those membranes to be hanging about the mare. They should not be left more than six hours. He had taken away a good many but he did not know that up to the present he had had a single case of laminitis or untoward result. He always irrigated the uterus after having introduced his hand, and he could follow up Mr. Gooch's remark by saying that if there was any of the injection left in, the mare would in course of time expel it. With regard to scouring and constipation in foals, there was one incident which had come within his knowledge to which he should like to refer. A number of years ago he had a case of obstinate constipation, which neither purgatives nor enema had any effect upon. By introducing the finger into the rectum he could feel the obstruction, and he had given the case up for lost, when, as a final resource, he introduced the forceps which were kept for the bitch, and he was successful in restoring what was really a most valuable foal.

Mr. WRAGG said that owing to the absence of breeding establishments in the neighbourhood of Whitechapel he was unable to take much part in the discussion. It was so many years since he saw any parturition that what little he did see he had almost forgotten all about. He agreed with Mr. Over when he said it was important to make a good choice, both of sire and dam.

Mr. BURCHNALL inquired whether more than one service was likely to produce twins.

Mr. OVER thought not. Some animals were liable to have twins, and they might have them with only one service.

Mr. BURCHNALL, continuing, said that after the birth of the foal, it was a bad thing to hurry. In the case of sucking, a good plan was to draw the milk away and soften the udder, as a foal would suck better from a soft udder than from a hard one. He certainly should not leave the membranes very long, and he should prefer to have them away at once. He thought that scouring at the ninth day very often acted as a safety valve, without which the foal would probably die. He had known a foal to go on scouring and do well, and it was, in his opinion, calculated to do some harm to stop scouring when the animal had some age on. After injecting into the womb he never removed the fluid, as the mare got rid of it herself. He added a word of praise to Mr. Over and said he had not listened to a more enjoyable paper for a long time.

Mr. PALEY agreed that it was a most interesting paper. There was a remark made by Mr. Wartnaby on the question of mating, to which he should like to allude. He did not practice in a district where hunters were bred, but he came originally from Yorkshire and knew something about it. He agreed with Mr. Over that it was best to introduce cart blood into the thoroughbred. In Yorkshire, a well chosen cart mare was mated with a thoroughbred horse, and they take it for granted that the offspring will be a strong legged horse. If it was a filly, they kept it to mate with another strain of blood stock and then they expected to get what was described as a strong hunter. The first strain, if too powerful for a hunter, was put to carriage work. He agreed with the various speakers who thought the placenta should be removed at any rate not later than 12 hours after delivery. He washed out, but never removed the fluids, for he found that it generally came out again almost as soon as it was injected.

Mr. SPENCER mentioned a remedy, the constituted parts of which were used by the human subject, that he had found very successful in a case of muco-enteritis.

Mr. MCGILL said there were certain points about the essay which struck him as being very patent. They were *par excellence* in this country in the breeding of horses, but he was of Mr. Over's opinion that far too little attention was given to the selection of mares. He thought one important detail was often overlooked in the breeding of horses, and that was the necessity of having in the stable at the time of the birth an attendant well known to the mare. That was a point thought a great deal of at Merrison, the stud farm of Mr. Lawrence Drew, the famous breeder of Clydesdales, and it was a singular fact that the stud groom was a woman and all the other grooms were females also. He had seen a lot of foaling in the Colonies, where the mares were kept more or less in a wild state, and the placental membranes almost invariably came away with the foal. He laid great stress upon the mating of horses, and thought a mare should be possessed of both stamina and temper. Mr. Over said he preferred them big and brown, but in regard to colour, he (the speaker) would sooner have a chestnut. A high tempered horse, if it was well trained, was always a first class animal, but if it was not properly trained, it was not of much value.

Mr. GRASBY hardly agreed that a mare was sufficiently matured at three years old to be served, but if it was done it must save a great deal of trouble at the time to have her previously in the breaker's hands. When he was in Lancashire he never heard anything about washing out the mare's womb, and it was not until he had come into contact with Mr. Over that he did. He had since practiced it with splendid results, using Condy's fluid, as was done by many of the best accoucheurs in obstetrics. In the removal of the fluid, he used his hand in the manner described by Mr. Over. One great advantage of washing out the womb was that it cleared away the small shreds of membrane which were nearly always left behind. In cases of constipation, he preferred the syringe to giving oil and running the risk of upsetting the animal. He also used the head rope as described by Mr. Over.

Mr. BLAKEWAY agreed with the essayist in emphasising the importance of mating properly. It was necessary also to find a man with judgment to select horses with those good qualities essential to successful breeding. Another important matter was selecting the place in which to put the mare during foaling. Any dirty hole was considered good enough by some people. In such cases he would suggest the use of a little quicklime, with clean bedding on the top.

The PRESIDENT said he should like to add his meed of praise to what had been said of the essayist. The paper had been a most excellent one, and the subsequent discussion very instructive. He was glad he had succeeded in inducing Mr. Over to address them, because he was not desirous of going outside the Association every time for a paper when there were plenty of members capable of preparing one for them. (Hear, hear.)

Mr. OVER then replied to the various questions which had been raised. He thought a mare was sufficiently well developed at three years to commence breeding. Some owners commenced when the animal was only two years old. He did not think there were so many cart horses or riding horses bred in this country as there were formerly. With regard to the time when the membranes should be removed, his experience was that five or six hours was too soon. One had to use a great deal of strength to get the membranes away. If this was done at once the mare would commence straining, and in case of death, the owner would blame the veterinary surgeon. He explained how it was he first came to use the syphon for removing the injection. In one case the mare retained the whole of it, and he tried a sponge to remove, but the process was too long, and he tried the syphon with the most satisfactory results. He certainly saw no harm in allowing a little to remain, but as you take one lot out one could put another lot in. When one

pumped fluid into the womb, unless it was sufficiently strong to kill any poison which might be there, danger was likely to ensue. He agreed with the usefulness of castor oil. Lubrication of the quarters was also another good course to adopt in the case of foals scouring, and he frequently did it himself. He had not heard of malt being used for the mares, but he had occasionally heard of barley being used. He was fond of mixing castor oil and glycerine together. With regard to colour, he must admit that he was fond of chestnut, but he was afraid a chestnut was not so saleable as a bay or a brown. There were other questions raised in the discussion which he regretted he was unable to go into, as the time of the meeting had already been unduly prolonged.

VOTES OF THANKS.

The PRESIDENT proposed a hearty vote of thanks to Mr. Over for his interesting paper.

Mr. MERRICK seconded, and declared that he had listened to the paper with a very great deal of pleasure.

The motion was carried unanimously, and briefly acknowledged by Mr. Over.

A hearty vote of thanks was also accorded the President for his conduct in the Chair.

CONVIVIAL.

At the close of the proceedings, the members sat down to tea, Mr. Dawes again presiding, and an agreeable time was spent previous to departing for their respective homes.

The next meeting of the Association will be held at the Grand Hotel, Birmingham.

JOHN MALCOLM, F.R.C.V.S., *Hon. Sec.*

ARMY VETERINARY DEPARTMENT.

Extract from *London Gazette* :—

WAR OFFICE, May 17.

1st Forfarshire Volunteer Artillery.—James Peddie, gent., to be Vet.-Lieutenant.

May 24th.

Vet.-Major I. Matthews, F.R.C.V.S., to be Vet.-Lieut.-Colonel *vice* J. C. Dwyer retired.

Vet.-Capt. H. T. Pease, Principal Lahore Veterinary College, has arrived in England from India on 15 months leave.

The Tirah Field Force having been reduced, the force now on the Indian frontier under command of Major-Gen. W. P. Symons, C.B., will be known officially as the Khyber Field Force. Amongst the appointments is : Inspecting Veterinary Officer, Vet.-Captain A. E. Richardson.

The Queen has been graciously pleased to give orders for the appointments to the Most Honourable Order of the Bath, in recognition of the services during the recent operations on the north-west frontier of India :—

* * * *

To be Ordinary Member of the Military Division of the 3rd Class, or Companions, of the said Most Honourable Order, viz. :

* * * *

Vet.-Lieut.-Col. Benjamin Lucas Glover, Army Veterinary Department.

Colonel F. Duck, C.B., Director General, Army Veterinary Department, was one of the guests at the Dinner given by the Secretary of State for War in honour of Her Majesty's birthday.

The undermentioned officers arrived in England on leave of absence :

Vet.-Major F. F. Crawford, Vet.-Capt. H. T. W. Mann, Vet.-Lieut. T. G. Peacock, from India ; Vet.-Lieut. T. E. W. Lewis from Egypt.

Vet.-Lieut. H. P. Turnbull arrived from India, having completed tour of service in that country.

In the Gazette of May 24 was published the despatch from Major-General Sir Herbert Kitchener on the operations at Shendy and Atbara, in which the following occurs :

In addition to the services of those officers whose names I have specially mentioned in the body of the despatch, I would also bring to your notice the valuable services of the following officers, non-commissioned officers, and men :—

* * * *

Veterinary Department—Vet.-Lieut. Russell.

The annual dinner of the Army Veterinary Department was held in the Whitehall Rooms, Hotel Metropole, on the 24th instant, when the following officers were present :—Vet.-Colonel F. Duck, C.B., Director General, Dr. Fleming, C.B., Vet.-Col. J. D. Lambert, C.B., Vet.-Lieut.-Cols. W. B. Walters, C.B., G. A. Oliphant, J. C. Berne, G. Durrant, Vet.-Majors J. J. Philips, J. Burton, W. B. Spooner, S. Duff-Gillespie, A. Bostock, T. Flintoff, W. A. Crow, D. C. Pallin, J. A. Nunn, C.I.E., D.S.O., Vet.-Captains A. A. Jones, W. R. Hagger, T. A. Killick, G. H. Fenton, E. Day, F. J. Short, E. H. Kelly, C. E. Nuthall, T. Marriott, J. A. Meredith ; Vet.-Lieuts. F. B. Drage, J. H. Jackson, E. W. Larnder, J. Moore, J. Loughlin, C. B. M. Harris, E. Wilkinson, T. G. Peacock, H. P. Turnbull, R. C. Moore, D. Bolton, J. A. B. McGowan, E. B. Bartlett, R. C. Cochran, J. B. Southey, A. G. Todd, Vet.-Surgeon (1st class) H. Dawson, and Professor McFadyean.

Anthrax Poisoning.

An inquest was held on Saturday on Patrick Durwin, a Customs watchman, White Horse Street, Limehouse. Dr. Wright, London Hospital, said that Durwin was admitted on the 12th of April suffering from a malignant pustule under the right ear. He told witness that he first noticed a small pimple on the Saturday previous, and that the pimple had burst. That evidently was the centre of the disease. An operation was performed and it was found that the blood was full of anthrax bacilli. There was nothing left but for the pustule to be cut out, that being the only chance of saving the man's life. However, the operation proved fruitless, so impregnated had the blood become with the disease. At the autopsy it was found that the whole of the organs were full of anthrax bacilli. The cause of death was undoubtedly anthrax poisoning. It was quite possible for the man to have contracted the disease by the germs in the air flying from the next wharf to where he was engaged, but there must have been some external wound. A verdict in accordance with the medical evidence was returned.—*St. James' Gazette.*

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED :—Messrs. Jno. A. Dollar, J. Walker, W. A. L. Robertson, W. Penhale, Barnstaple. "George Thursday," "Nemo."

Veterinary Pathology, Friedberger & Frohner, trans. Capt. Hayes ; *The American Veterinary Review*, *Schenk's Theory*, *The Agric. Journal* (Cape), *The Times*, *The Scotsman*, *The Newcastle Daily Journal*.

PAPER HORSE SHOES—A DISCLAIMER.

Sir,

My name having been introduced in an article on "Horse shoeing," recently published by a lay contemporary, I at once forwarded them the letter annexed. As the original article, if read by a professional man, was likely to convey an entirely erroneous impression perhaps you will have the kindness to publish the disclaimer.—Yours faithfully,

JNO. A. W. DOLLAR.

May 24th.

[*Copy*].

56 New Bond Street, W.
May 23rd, 1898.

Sir,

Referring to the article on "Paper horse shoes" I am compelled to enter a formal protest against the suggestion that I am in any way concerned in the views therein set forth or that they receive my countenance. The anticipations of success are not mine but the inventor's, and I am solely concerned in discovering to what degree they are justified. I could therefore in no sense permit the use of my name in connection with them.

As the matter might otherwise prove damaging to me I trust you will give early publicity to this letter—Your obedient servant,

JNO. A. W. DOLLAR.

Veterinary Societies—Addresses.

Alterations for this list must be duly notified by the Secretaries

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93 Huddleston-rd. Tufnell Park, N.
Meetings, First Thursday in each month, except August and September, 10 Red Lion Square. Holborn, at 7 p.m.

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